

## CLAIMS

1. An optical fiber connector for forming a mechanical splice between first and second bare optical fibers stripped of coatings, the connector comprising a connector body that comprises at least two main clamping sections dimensioned to clamp directly onto the bare fiber of the first and second optical fibers, the main clamping sections arranged such that the first optical fiber may be clamped by a first of the main clamping sections independently of the second optical fiber, enabling the clamping of the first fiber against rotational and axial movement with respect to the connector body to remain substantially undisturbed by subsequent clamping or unclamping of the second fiber.
2. A connector according to claim 1, wherein the connector body includes a bore arranged to accommodate the optical fibers.
3. A connector according to claim 2, wherein the main clamping sections and the bore of the connector body are configured to clamp the bare fiber of the first and second optical fibers in the bore.
4. A connector according to claim 1, further comprising at least one additional clamping section dimensioned to clamp onto a coated portion of one of the optical fibers.
5. A connector according to claim 4, comprising at least two said additional clamping sections dimensioned to clamp onto coated portions of the optical fibers.
6. An optical fiber connector for forming a mechanical splice between first and second optical fibers, the connector comprising a connector body that comprises at least four clamping sections configured to clamp the first and second optical fibers, the clamping sections arranged such that the first optical fiber may be clamped by at least one of the clamping sections independently of the second optical fiber, enabling the clamping of the first fiber against rotational and axial movement with respect to the connector body to remain substantially undisturbed by subsequent clamping or unclamping of the second fiber.

7. A connector according to claim 6, wherein at least two of the clamping sections are main clamping sections configured to clamp directly onto bare fiber stripped of coatings, of the first and second optical fibers.
8. A connector according to claim 6, wherein at least one of the clamping sections is an additional clamping section configured and arranged to clamp onto a coated portion of one of the optical fibers.
9. A connector according to claim 6, wherein at least two of the clamping sections are additional clamping sections configured and arranged to clamp onto coated portions of the optical fibers.
10. A connector according to claim 6, comprising at least five clamping sections.
11. A connector according to claim 6, comprising at least three main clamping sections.
12. A connector according to claim 11, wherein a first of the main clamping sections is arranged to clamp onto the first fiber only, a second of the main clamping sections is arranged to clamp onto the second fiber only, and a third of the main clamping sections is arranged to clamp onto both of the first and second fibers.
13. A connector according to claim 6, wherein the connector body includes a bore arranged to accommodate the optical fibers.
14. A connector according to claim 2, wherein the bore has a first region, and a second region of greater diameter than the first region at each end of the first region.
15. A connector according to claim 14, wherein the bore has a third region of greater diameter than the second region at each end of the second region.

16. An optical fiber connector for forming a mechanical splice between first and second optical fibers, the connector comprising a connector body including a bore for accommodating the fibers, the bore having a first region, a second region of greater diameter than the first region at each end of the first region, and a third region of greater diameter than the second region at each end of the second region opposite to that adjacent to the first region, wherein at least the second and/or third regions of the bore are substantially circular in cross-section.
17. A connector according to claim 14, wherein the first region of the bore is dimensioned to accommodate bare optical fibers stripped of coatings in a tight clamping fit.
18. A connector according to claim 17, wherein the bare optical fiber has an external diameter of approximately 125  $\mu\text{m}$ .
19. A connector according to claim 14, wherein the second regions of the bore are dimensioned to accommodate primary coatings of the optical fibers in a tight clamping fit.
20. A connector according to claim 17, wherein the primary coated optical fiber has an external diameter of approximately 250  $\mu\text{m}$ .
21. A connector according to claim 15, wherein the third regions of the bore are dimensioned to accommodate buffer coatings of the optical fibers in a tight clamping fit.
22. A connector according to claim 21, wherein the buffer coated optical fiber has an external diameter of approximately 900  $\mu\text{m}$ .
23. A connector according to claim 15, wherein the second and third regions of the bore are dimensioned to accommodate coated optical fibers of different respective sizes.
24. A connector according to claim 16, wherein the connector body is divided into at least two parts along at least part of a length thereof, arranged such that the optical fibers may be clamped between the parts.

25. A connector according to claim 1, further comprising a resilient clamp member arranged to retain the optical fibers in a clamped condition in the connector body.
26. A connector according to claim 25, wherein the resilient clamp member is arranged to be retained on the exterior of the connector body.
27. A connector according to claim 26, wherein the resilient clamp member is arranged to retain the parts of the connector body together such that the optical fibers are clamped between the parts.
28. A connector according to claim 16, further comprising a plurality of fixing members, each of which is arranged to be fixed, e.g. crimped, to a respective optical fiber such that the fixing member is secured in the connector body when the fibers are spliced.
29. A connector according to claim 28, wherein each fixing member enables the retention of a desired rotational orientation of its respective fiber in the connector.
30. A connector according to claim 28, wherein each fixing member enables the axial retention of its respective fiber in the connector.
31. A connector according to claim 16, further comprising at least one plug arranged to close an end of the bore when an optical fiber is not installed in that end of the bore.
32. A connector according to claim 16, arranged to form mechanical splices between a plurality of first and second optical fibers.
33. A connector according to claim 32, wherein the connector body comprises a plurality of bores arranged to accommodate the plurality of first and second optical fibers.
34. A connector according to claim 16, including alignment means for aligning the first and second optical fibers with each other.

35. A connector according to claim 34, wherein the connector body includes a bore arranged to accommodate the optical fibers and the alignment means comprises a said bore of the connector body.

36. A connector according to claim 34, wherein the alignment means comprises an alignment member in which the first and second optical fibers may be received and aligned.

37. A connector according to claim 36, wherein the alignment member comprises a tube.

38. A connector according to claim 36, wherein the alignment member comprises at least one plate, preferably a pair of plates, each plate having an aperture therein for a respective one of the first and second fibers.

39. A connector according to claim 38, wherein each plate includes a lens to assist in coupling light between the first and second optical fibers.